Dong Hyun Chon
Wastewater Superintendent
City of Lompoc Regional Wastewater Treatment Plant
1801 W. Central Avenue
Lompoc, CA 93436

May 28, 2021

RE: Submission of Technical Memorandum in Support of AOC Paragraph 41 Extension

Chon

This letter transmits a summary of the City's progress in identifying the cause and/or source of chronic whole effluent toxicity (WET) pursuant with the City's pending request for an extension to complete the work detailed in paragraph 41 of the AOC.

As discussed in the attached memorandum, recent TRE efforts have focused on the continued routine monitoring of effluent toxicity (i.e., temporal presence/absence), continued source evaluation testing (i.e., further characterization of possible influence of UV disinfection on the presence and/or magnitude of effluent toxicity), and continued characterization of effluent toxicity through toxicity identification evaluation testing (TIE) and suspect and non-target screening high resolution mass spectrometry (performed by the Young Laboratory, Civil and Environmental Engineering Department, University of California at Davis).

In specific regard to paragraph 41 of the AOC, the City has completed the first phase of the TIE (toxicant characterization), and has engaged in second phase evaluations (toxicant identification). As detailed in the technical memorandum, the City's present understanding of effluent toxicity includes the following:

1. Intermittency of toxicity continues, with the intermittency of effluent toxicity not clearly aligned with any presently identified operational condition/parameter.
2. The causative agent(s) contributing to effluent toxicity is likely organic and nonpolar. Continued complete elimination of toxicity through C_{18} SPE treatment supports this assertion.
3. The causative agent(s) contributing to effluent toxicity is persistent and relatively stable. Stability has been confirmed for up to 16 days when samples are stored in the dark, at <6°C and without headspace, and continued persistence of toxicity, albeit at substantially reduced magnitude, has been confirmed for up to 74 days.
4. The role of UV disinfection in the possible magnitude of toxicity is not fully understood, where at times the magnitude of toxicity appears to be greater in post-UV treated effluent relative to simultaneously collected pre-UV treated effluent. Regardless, there is evidence of an upstream source insomuch that pre-UV treated effluent was toxic in the March 2, 2021 sampling event.

As originally communicated in the City's request for an extension to complete the work detailed in paragraph 41 of the AOC, effluent toxicity has been highly variable and intermittent, with only four of the most recent 17 samples being toxic. While this recent change in the pattern of toxicity, moving from consistently present to intermittent present, provides an avenue for investigation unto itself through facility, collection system and pre-treatment performance evaluation, it also challenges continued and rapid TIE investigations as a TIE investigation can only progress with toxic samples. As detailed in the

technical memorandum, continued future investigation activities are recommended, but are predicated on the continued presence and identification of toxic samples.

Should you or your staff have any questions regarding the studies detailed in the attached technical memorandum, please do not hesitate to contact me.

Sincerely

Brant Jorgenson, Ph.D.
Vice President/Special Projects Director

Att. Technical Memorandum